

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method comprising:

creating a data encoded object beam from an input light beam source using a first set of controllable optical elements in an interior portion ~~controllable portion~~ of a spatial light modulator; and

creating a reference beam from the input light beam source using a second set of controllable optical elements in a perimeter portion ~~controllable portion~~ of the spatial light modulator.

2. (Canceled).

3. (Canceled).

4. (Currently amended) The method of claim 1 ~~claim 2~~, further comprising controlling the first set of controllable optical elements to define a bit map in the data encoded object beam.

5. (Currently amended) The method of claim 1 ~~claim 2~~, further comprising controlling the second set of controllable optical elements to define a reference mask in the reference beam.

6. (Currently amended) The method of claim 1 ~~claim 2~~, wherein the first and second sets of controllable optical elements include transmissive optical elements.

7. (Currently amended) The method of claim 1 ~~claim 2~~, wherein the first and second sets of controllable optical elements include reflective optical elements.

8. (Currently amended) The method of claim 1-~~claim 2~~, further comprising optically directing the data encoded object beam and the reference beam into a medium such that the data encoded object beam and the reference beam interfere to create a hologram in the medium.

9. (Currently amended) The method of claim 8, wherein the data encoded object beam comprises a first data encoded object beam, the reference beam comprises a first reference beam and the hologram comprises a first hologram, the method further comprising:

creating a second data encoded object beam using the first set of controllable optical elements ~~controllable portion of the~~ spatial light modulator;

creating a second reference beam using the second set of controllable optical elements ~~controllable portion of the~~ spatial light modulator; and

optically directing the second data encoded object beam and the second reference beam into the medium such that the second data encoded object beam and the second reference beam interfere to create a second hologram in the medium.

10. (Original) The method of claim 9, wherein creating the second reference beam includes controlling the second set of controllable optical elements to define a reference mask in the second reference beam, wherein the reference mask in the second reference beam is different from the reference mask in the first reference beam.

11. (Original) The method of claim 10, wherein the reference mask in the second reference beam is substantially non-correlated with the reference mask in the first reference beam.

12. (Original) The method of claim 11, wherein the first and second holograms are stored in substantially a same location in the medium and are multiplexed in the medium by the first and second reference masks.

13. (Currently amended) A spatial light modulator comprising:

a first set of controllable optical elements to create a data encoded object beam from an input light beam-source, wherein the first set of controllable optical elements form an interior portion of the spatial light modulator; and

a second set of controllable optical elements to create a reference beam from the input light beam-source, wherein the second set of controllable optical elements form a perimeter portion of the spatial light modulator.

14. (Canceled).

15. (Original) The spatial light modulator of claim 13, further comprising a controller to control the first set of controllable optical elements to define a bit map in the data encoded object beam and to control the second set of controllable optical elements to define a reference mask in the reference beam.

16. (Original) The spatial light modulator of claim 13, wherein the first and second sets of controllable optical elements include transmissive optical elements.

17. (Original) The spatial light modulator of claim 13, wherein the first and second sets of controllable optical elements include reflective optical elements.

18. (Currently amended) A holographic data storage system comprising:

a holographic medium; and

a spatial light modulator including a first set of controllable optical elements to create a data encoded object beam from an input light beam-source, and a second set of controllable optical elements to create a reference beam from the input light beam-source, wherein the data encoded object beam and reference beam interfere in the holographic medium to create a hologram, wherein the first set of controllable optical elements form an interior portion of the spatial light modulator and the second set of controllable optical elements form a perimeter portion of the spatial light modulator.

19. (Currently amended) The holographic data storage system of claim 18, further comprising:

a laser to produce the input light beam-~~source~~; and

one or more optical elements to condition the input light beam-~~source~~.

20. (Canceled).